

Flood Risk Assessment

Block C, 63-71 High Street Hampton Hill, TW12 1NH

Reference: 203 FRA- 001

Mar-22

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The information presented and conclusions drawn are based on statistical data and are for guidance purposes only.

The study provides no guarantee against flooding of the study site or elsewhere, nor of the absolute accuracy of water levels, flow rates and associated probabilities.

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Purpose of this report

1.1 Urban Water has been appointed to undertake a Level 1 – Screening Study Flood Risk Assessment for a development located at TW12 1NH.

Objectives

- 1.2 The objectives of this FRA are to demonstrate the following:
 - * Whether the proposed development is likely to be affected by current or future flooding.
 - * Whether the proposed development will increase flood risk elsewhere.
 - * Whether the flood risks associated with the proposed development can be satisfactorily managed.
 - * Whether the measures proposed to deal with the flood risk are sustainable.

Documents Consulted

1.3 To achieve these objectives the following documents have been consulted and/or referenced:

The National Planning Policy Framework (NPPF)

CIRIA C753 document The SuDS Manual, 2015

Local Flood Risk Management Strategy (LFRMS)

Level 1 Strategic Flood Risk Assessment (SFRA)

Aerial photographs and topographical survey of the site

British Geological Society Records

Local Council flood Maps

Environment Agency flood maps

The CIRIA publication 'C635 Designing for exceedance in urban drainage— Good practice'

Development Site and Location

- 2.1 The site is located at High Street, Hampton Hill London. The nearest post code is TW12 1NH. Refer to appendix A for site location plan.
- 2.2 The current use of the site is an office building. The current use vulnerability clasification of the site is Less vulnerable. The site is located in the River Flood Zone 1. Refer to Appendix B for more details.

Development Proposals

- 2.3 The proposed development includes the conversion of the exisiting building into flats. The total development area is approximately 800 sqm. Refer to Appendix B for layout of the proposed development.
- 2.4 The vulnerability classification of the proposed development is More vulnerable with an estimated lifetime between 50 and 100 years.

Site Hydrology and Hydrogeology

Hydrology 2.5 The River Thames is located approximately 2260 m away from the development.

Aquifer 2.6 The development is located within a principle aquifer area. A principle aquifer consists of layers of rock or deposits that provide a high level of water storage. It may support water supply and/or river base flow on a strategic scale. It is likely that principal aquifers are aquifers previously designated as major.

Source Protection Zone 2.7 The site is not located within a Source Protection Zone.

Groundwater Levels 2.8 The ground water levels for this site are unknown.

Site Geology

Bedrock 2.9 The British Geological Society records of the site show that it is located within the London Clay Formation - Clay and Silt.

Superficial Deposits 2.10 The British Geological Society records show that the superficial deposits are Taplow Gravel Member - Sand and Gravel.

National Planning Policy Framework (NPPF)

The NPPF and its technical guidance is a set of planning policies with the key objective to contribute to the achievement of sustainable development. As part of it, they ensure that flood risk and sustainability are taken into account during the planning process. This ensures that developments are not located in flood risk areas and directs developments to lower risk areas. The NPPF applies a sequential risk-based approach to determining the suitability of land for development in flood risk areas. The NPPF also encourages developers to seek opportunities to reduce the overall level of flood risk through the layout of the development and the application of Sustainable Drainage Systems (SuDS).

The Flood and Water Management Act (2010)

3.2 The Flood and Water Management Act aims to reduce the flood risk associated with extreme weather events. It provides a robust management of flood risk for people, homes and businesses and also encourages the use of SuDS for developments. A robust SuDS strategy should take into account the recommendations given in this Flood Risk Assessment.

Strategic Flood Risk Assessment (SFRA)

- 3.3 Planning policy with regard to development and flood risk in the area is detailed in the Strategic Flood Risk Assessment (SFRA) which was published in 2021. The proposed development site is located within the administrative boundary of the London Borough of Richmond upon Thames.
- 3.4 The SFRA commits to direct new development to locations at lowest flood risk. The SFRA provides information on the levels and flood hazards that could result from flooding. The Environment Agency flood zone maps and the SFRA ignore the presence of existing flood defences when defining the potential extent of flooding.
- 3.5 This report follows the guidance given in the Strategic Flood Risk Assessment by evaluating the flood risk and providing relevant flood mitigation.

4.1 The flood risks were determined by identifying the sources of flooding and assessing their possible impact and likelihood to the development.

Fluvial Flood Risk Assessment

4.2 Fluvial flood risk was assessed using the Environment Agency Flood Zone Maps and the sequential risk-based approach recommended in the NPPF. The sequential test takes into account the flood risk vulnerability of land uses in relation to the flood zone categorisation. These parameters are assessed in order to determine whether the development is appropriate. Under certain circumstances the exception test is applicable.

Sequential Approach

Step 1 4.3 Flood Zone categorisation

- The proposed development is less than 1Ha and falls within the Environment Agency Flood Zone 1. Therefore, this Flood Risk Assessment Level 1- Screening report should be sufficient under the NPPF. The Flood Zone 1 is considered to have a low probability of flooding with an annual probability of flooding of <0.1%. The chance of flooding is 1 in 1000 years or greater.
- Step 2 4.4 Within Table 2 (Flood Risk Vulnerability Classification) of the NPPF Flood risk vulnerability Planning Practice Guide, the proposed development is classified as 'More vulnerable'.
- Sequential Test Results
- Step 3 4.5 The Flood Risk vulnerability and Flood Zone Compatibility table of the Results NPPF Planning Practice Guide states that More vulnerable developments are appropriate in this area.

The Exception Test

4.6 The exception test is not required.

5.1 The development has been assessed for all potential flood risks such as river and tidal flood risk, surface water flooding, flooding from groundwater, reservoir flood risk and drainage systems.

Historic Flooding

5.2 The site does not benefit from flood defences. The Environment Agency records show that the area around the site has not been flooded in the past.

Flooding from river and sea

- 5.3 The proposed development is less than 1Ha and falls within the Environment Agency Flood Zone 1.Therefore, this Flood Risk Assessment Level 1- Screening report should be sufficient under the NPPF. The Flood Zone 1 is considered to have a low probability of flooding with an annual probability of flooding of <0.1%. The chance of flooding is 1 in 1000 years or greater.
- 5.4 The climate change allowance is not applicable for this site as it is not affected by fluvial flood risk.

Surface water (overland flows) flood risk

- The Environment Agency maps show that the flood risk from surface water is very low. A residual risk of localised ponding remains unlikely. The Environment Agency surface water flood risk maps are defined through application of a specific procedure based on digital terrain models and assumptions regarding losses to infiltration and/or urban drainage. The surface water flood maps is defined by the Environment Agency as follows.
- 5.6 "The nationally produced surface water flood mapping only indicates where surface water flooding could occur as a result of local rainfall. It does not fully represent flooding that occurs from:
 - Ordinary watercourses
 - Drainage systems or public sewers caused by catchment-wide rainfall events
 - Rivers
 - Groundwater

Due to the modelling techniques used, the mapping picks out depressions in the ground surface and simulates some flow along natural drainage channels, rivers, low areas in floodplains, and flow paths between buildings. Although the maps appear to show flooding from ordinary watercourses, they should not be taken as definitive mapping of flood risk from these as the conveyance effect of ordinary watercourses or drainage channels is not explicitly modelled. Also, structures (such as bridges, culverts and weirs) and flood risk management infrastructure (such as defences) are not represented.

The nationally produced surface water flood mapping does not take account of the effect of pumping stations in catchments with pumped drainage. No allowance is made for tide locking, high tidal or fluvial levels where sewers cannot discharge in to rivers or the sea."

- 5.7 The strategic flood risk for the London Borough of Richmond upon Thames confirms that the flood risk for the site is Very Low.
- 5.8 On the basis of Environment Agency and the Strategic flood risk assessment's surface water mapping, together with the presence of surface water drainage systems at the site and surrounding area it is concluded that the site is at Very Low risk of flooding from surface water sources.

Flooding from drainage systems in adjacent areas

5.9 The area around the development is shown a having a high level of sewer incident within the flood maps of the Strategic Flood Risk Assessment. See appendix C for details.

Reservoirs Risks

5.10 The Reservoir Flood Map (RFM) produced by the Environment Agency do not show the risk to individual properties of dam breach flooding. The maps do not indicate or relate to any particular probability of dam breach flooding. The maps were prepared for emergency planning purposes and can be used to help reservoir owners produce on-site plans and the Local Resilience Forum produce off-site plans, and to prioritise areas for evacuation/early warning in the event of a potential dam failure. The RFM shows that the development could be outside of the possible dam breach flooding path. See Appendix C.

Groundwater flood risk

5.11 There is potential for groundwater flooding below ground level within the development. Groundwater levels would tend to vary seasonally and are influenced by ground and meteorological conditions and proximity to water features. The groundwater flooding risk for this site is considered to be medium. Refer to appendix C for record drawings.

Critical Drainage Areas

5.12 The development does not fall within a critical drainage area.

- 6.1 The Flood hazard assessment has demonstrated that the site is:
 - In Flood Zone 1
 - At Very Low risk of surface flooding
 - At medium risk of groundwater flooding
 - Outside of a critical drainage area
 - Potentially within an area of sewer flooding
- 6.2 Under the NPPF it is necessary to demonstrate that, for any new development on the site, it is possible to provide an adequate level of flood protection for personnel working or living at the development.

Flood Protection

- 6.3 The site is within an area of sewer flooding. The following recommendation should be followed:
 - All new connections to the sewer network should have non-return valves.
- 6.4 There is potential for groundwater flooding below ground level within the development. Groundwater levels would tend to vary seasonally and are influenced by ground and meteorological conditions and proximity to water features. The general precautionary measures to mitigate the risk of groundwater flooding in this development are:
 - -There is an existing basement in the building. The basement should have a 3 barrier tanking to prevent groundwater ingress. This includes Type A (Barrier Protection), Type B (Structurally Integral Protection) and Type C (Drained Protection)with gravity drain membrane and sump/pump system.
 - Barrier tanking to extent 200mm above ground level and be fully integrated with the flood protection barrier.

- 7.1 The NPPF specifically stipulates that consideration should be given to potential off-site flood impacts of any proposed development. These off-site impacts are in relation to:
 - Surface water management
 - Flood flow conveyance, storage and climate change
- 7.2 There are not changes on the external surfaces neither changes to the fabric of the building. With no increase in the rate of surface water discharge from the site, compared to the site in its current configuration, the proposed development would have no adverse impact on surface water flood risk at the site or surrounding area.

8.1 This flood risk assessment has identified the potential flooding mechanisms that could affect the site. This assessment has concluded that the development site requires additional flood risk mitigation strategies so all the flood risk can addressed.

Site access and public safety

8.2 This assessment has demonstrated that the proposed development will have no adverse impact on flood risk in the area surrounding the site. Available evidence indicates that the development would result in no change in surface water generation. There is therefore no basis to indicate that, with respect to flood risk, the proposed development would have adverse impact on public safety.

- 9.1 It is concluded that subject to the proposed mitigation measures, the site can be developed in accordance with the provisions of the NPPF and the requirements of the Environment Agency and the local planning authority.
- 9.2 This report demonstrates that the proposal will be safe, in terms of flood risk, for its design life and will not increase the flood risk elsewhere.



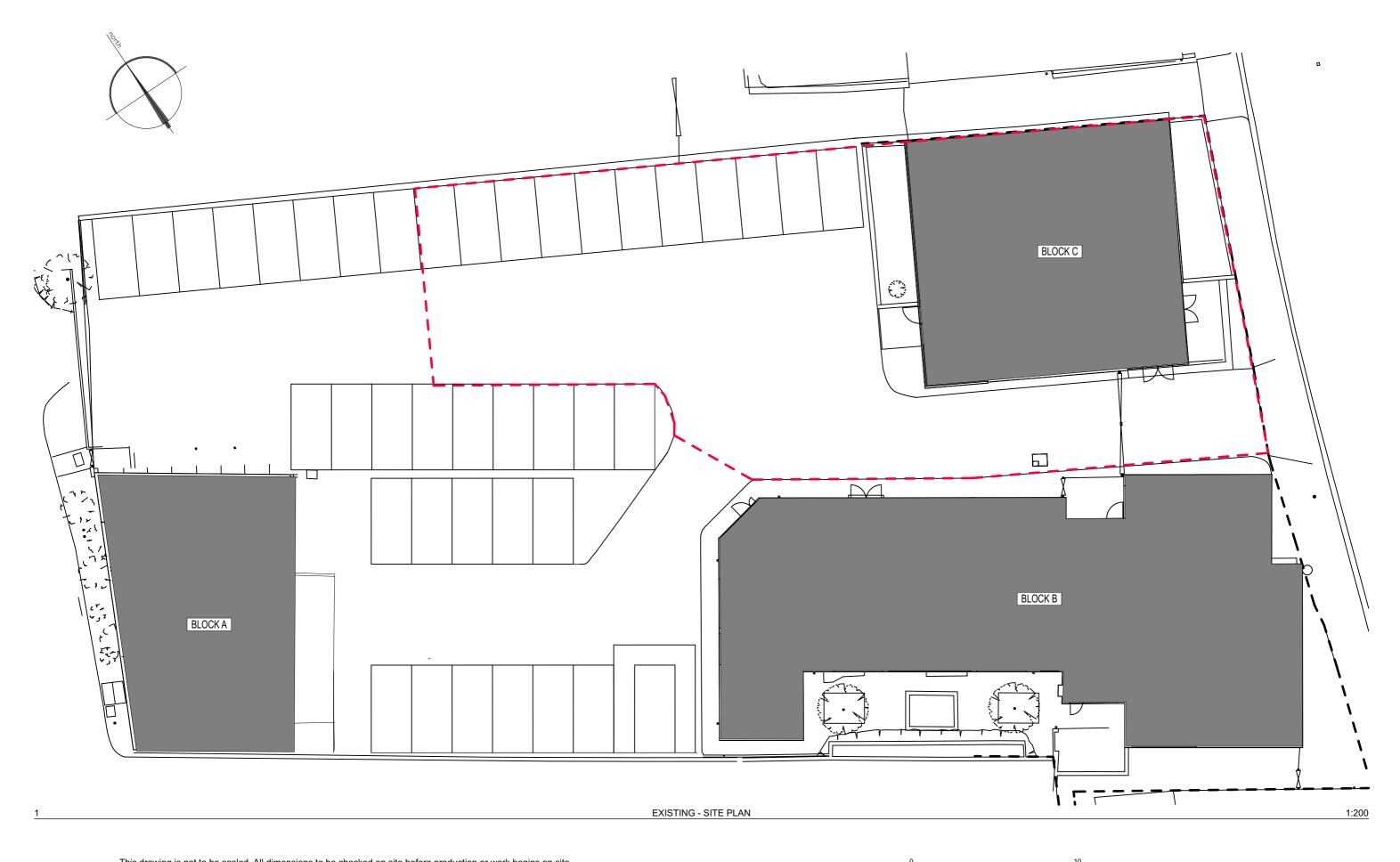
Appendix A



	63-71 High Street, Hampton Hill, London, TW12 1NH	
Site area:	Approximately 2,380m ²	
Existing land use:	Mixed Use (Commercial, Residential)	
OS NGR:	TQ 14256 70823	
Local Planning Authority:	London Borough of Richmond upon Thames	
	Hamphan Hill Legend Site Boundary	



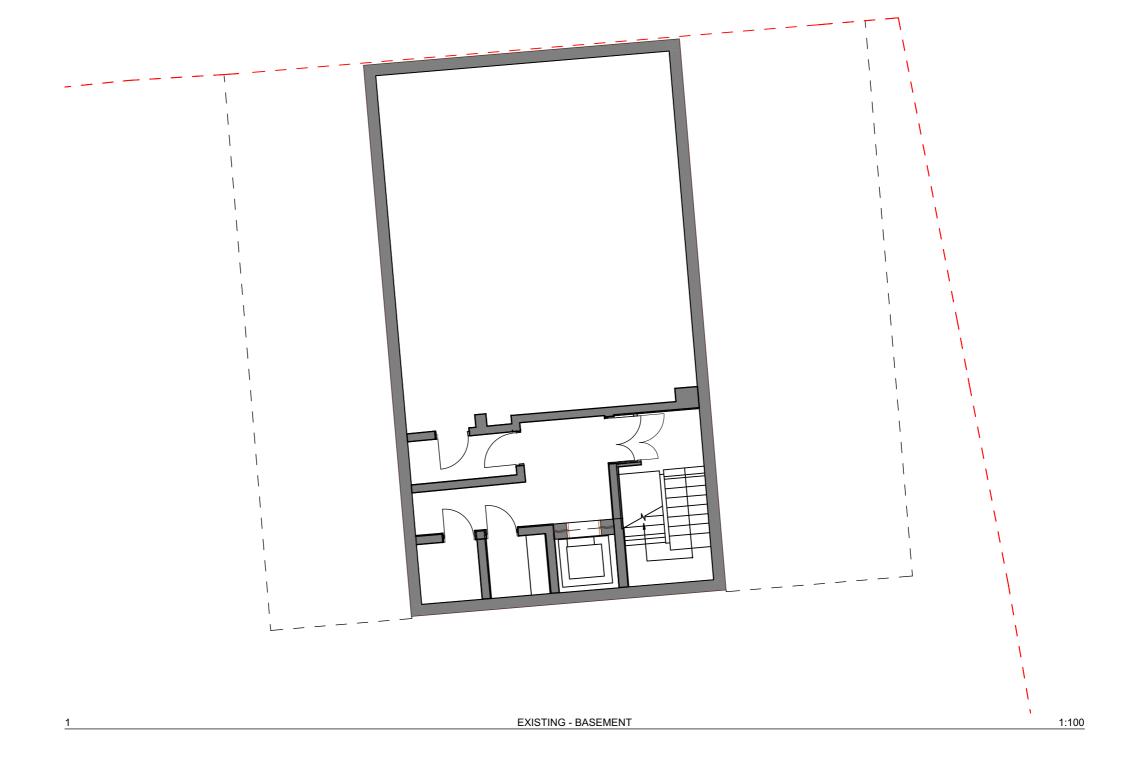
Appendix B



This drawing is not to be scaled. All dimensions to be checked on site before production or work begins on site.

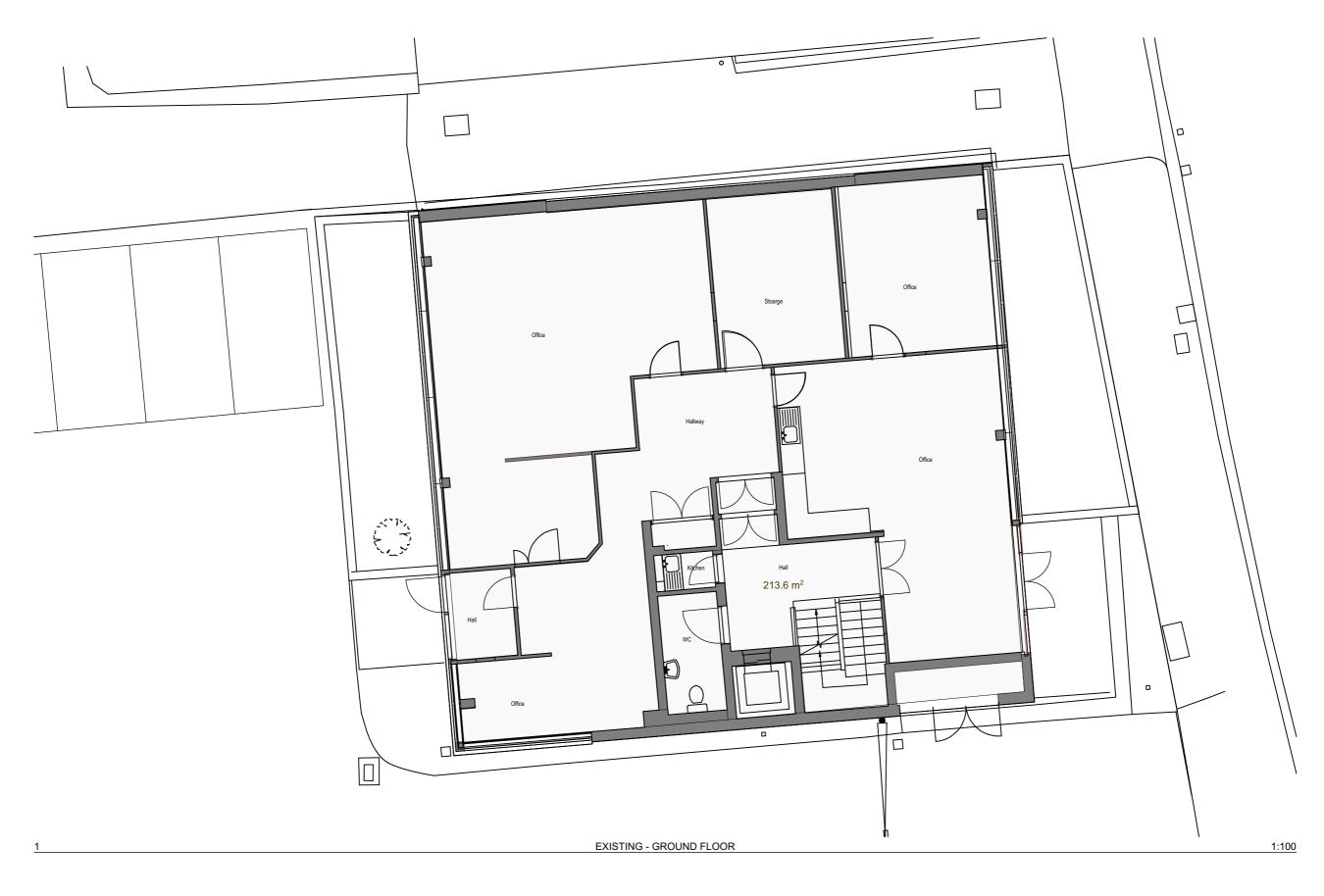
Any discrepancies to be notified immediately to Charles Doe Architects. Do not reproduce this drawing without the prior consent of Charles Doe Architects. ISSUE - FOR PERMITTED DEVELOPMENT 1452 1:200 @ A3 Project 3 The Square OFFICE AND RESIDENTIAL **CHARLES DOE ARCHITECTS** Tel: +44 (0) 20 8948 4200 63-71 HIGH STREET HAMPTON HILL Richmond BLOCK C - EXISTING MARCH 2022 Drawing No. S-100 Fax: +44 (0) 20 8948 4201 Surrey TW9 1DY SITE PLAN





0 5 metres

SUE - FOR PERMITTED DEVELOPMENT



0 5 metres

ISSUE - FOR PERMITTED DEVELOPMENT

3 The Square Richmond Surrey TW9 1DY

Tel: +44 (0) 20 8948 4200 Fax: +44 (0) 20 8948 4201 OFFICE AND RESIDENTIAL 63-71 HIGH STREET HAMPTON HILL

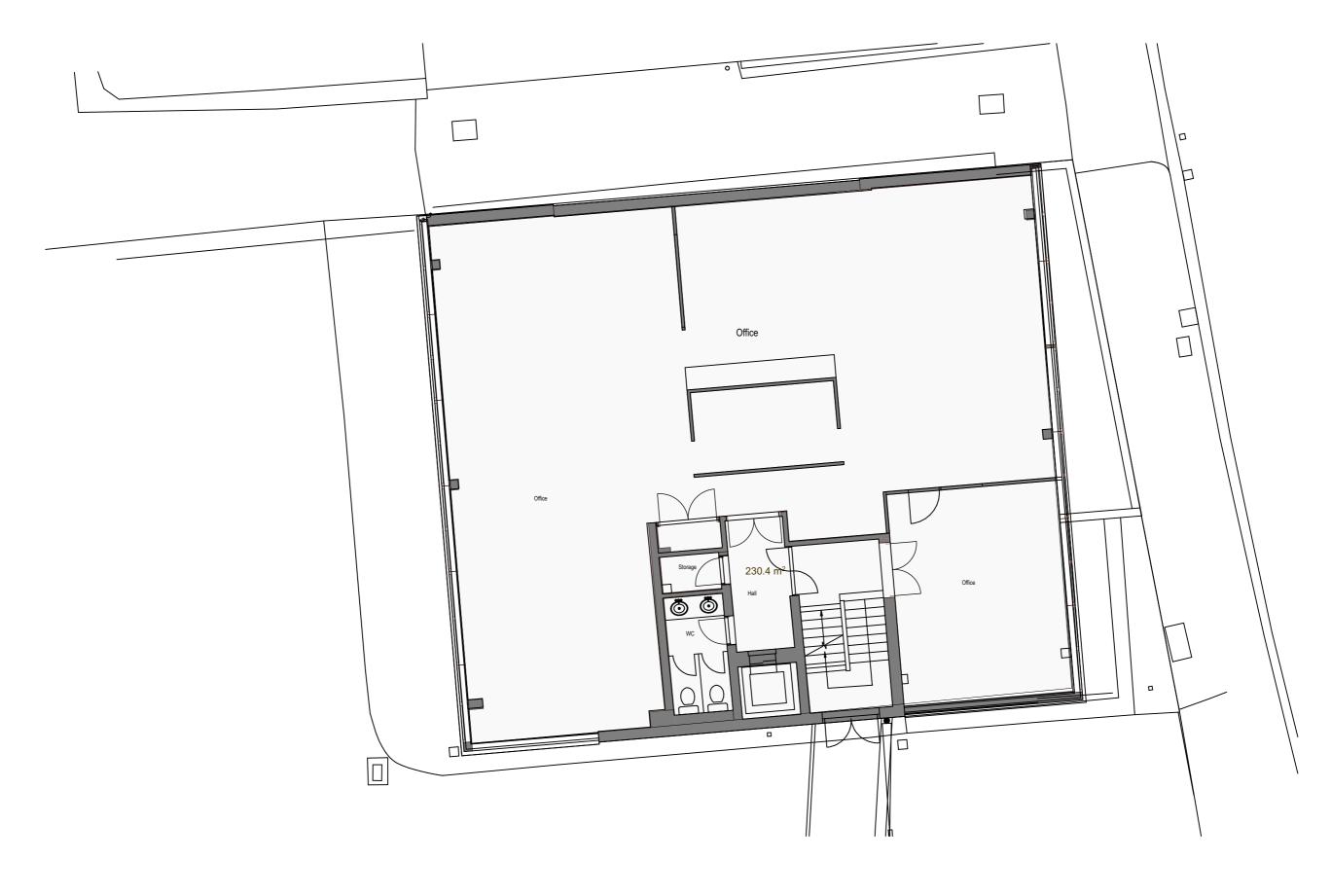
EXISTING - GROUND FLOOR

Scale 1:100 @ A3

Date MARCH 2022

Project 1452

Drawing No. S-102



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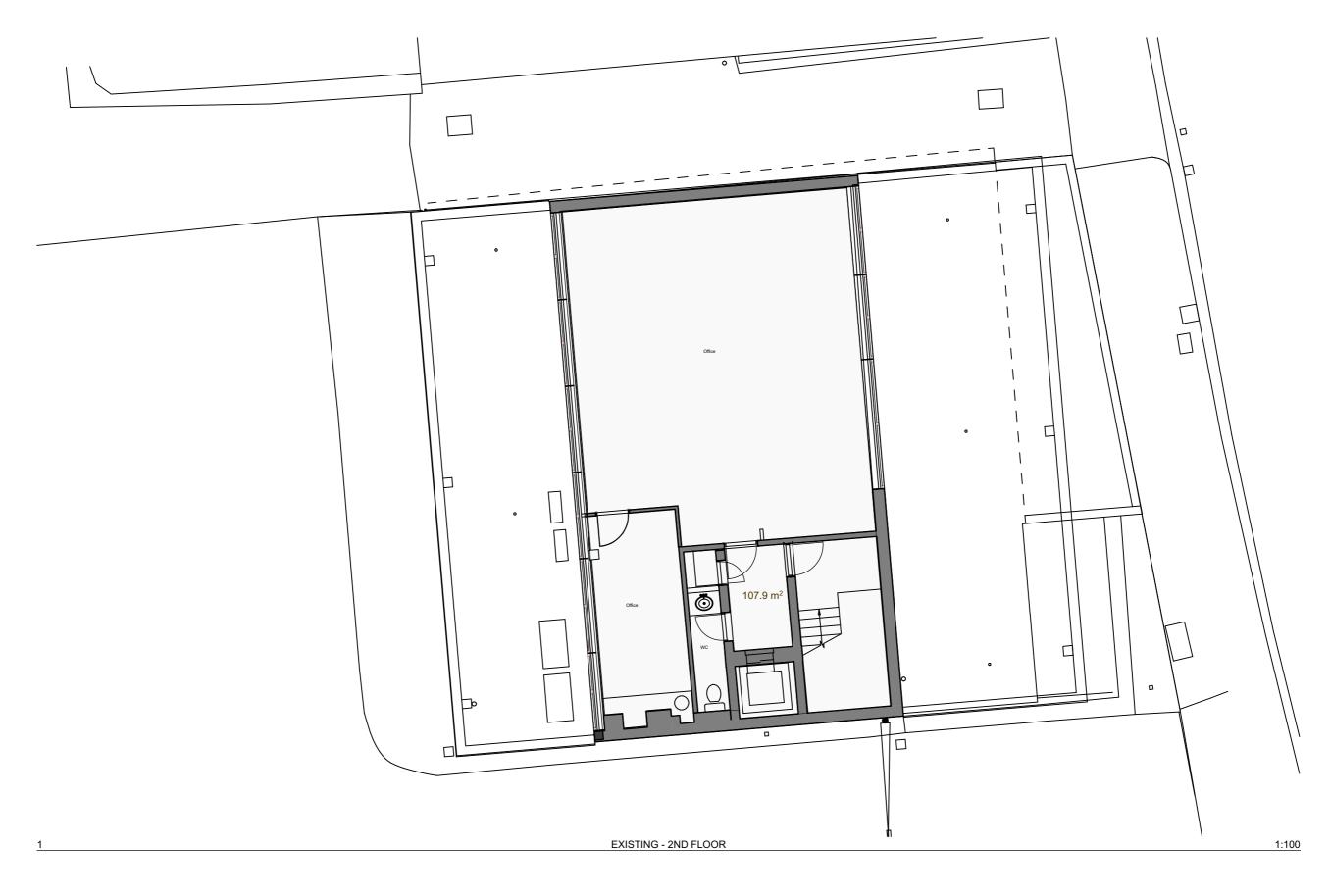
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Project 1452

S-103

Drawing No.



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ISSUE - FOR PERMITTED DEVELOPMENT

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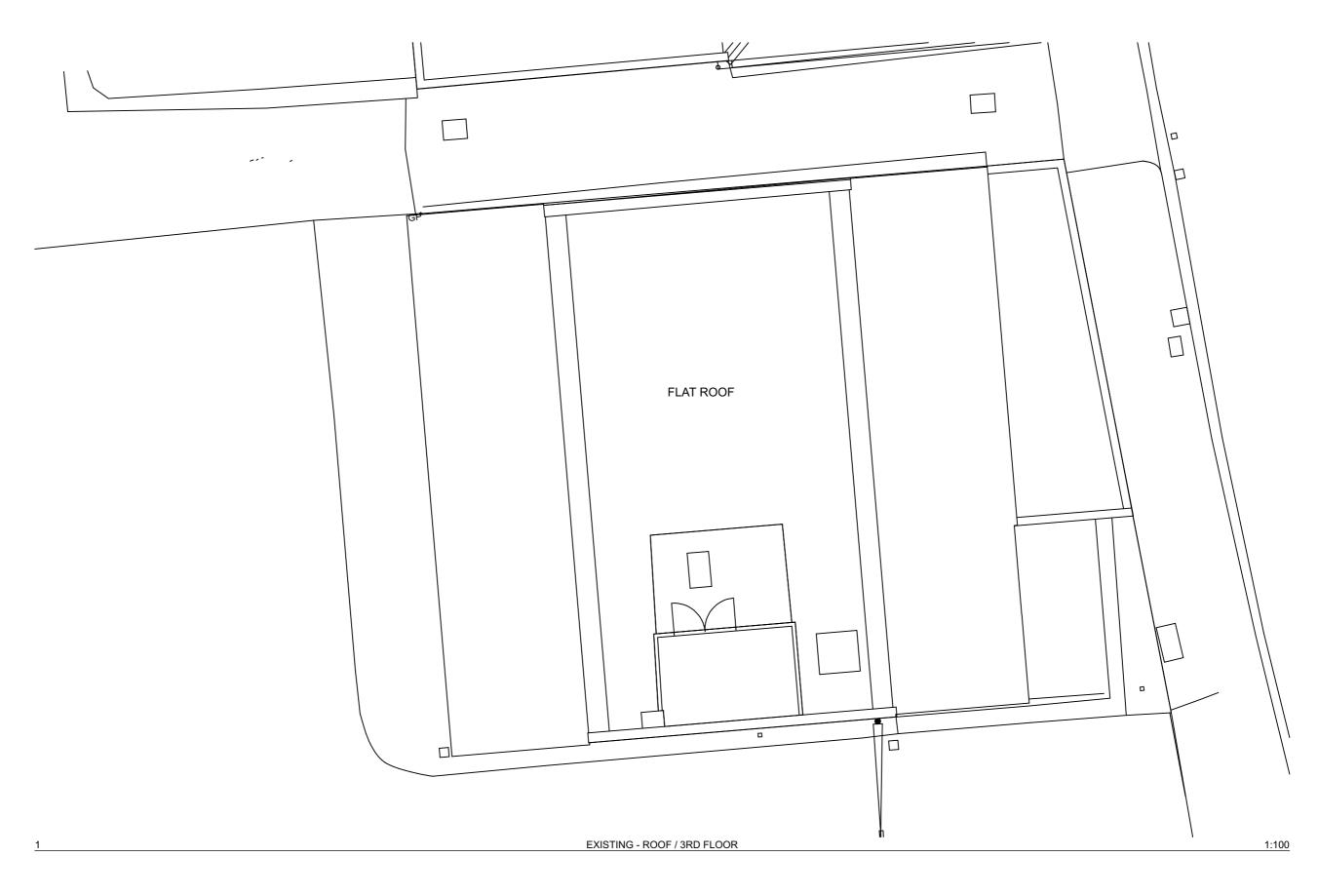
EXISTING - SECOND FLOOR PLAN Date

ale 1:100 @ A3

MARCH 2022

Project 1452

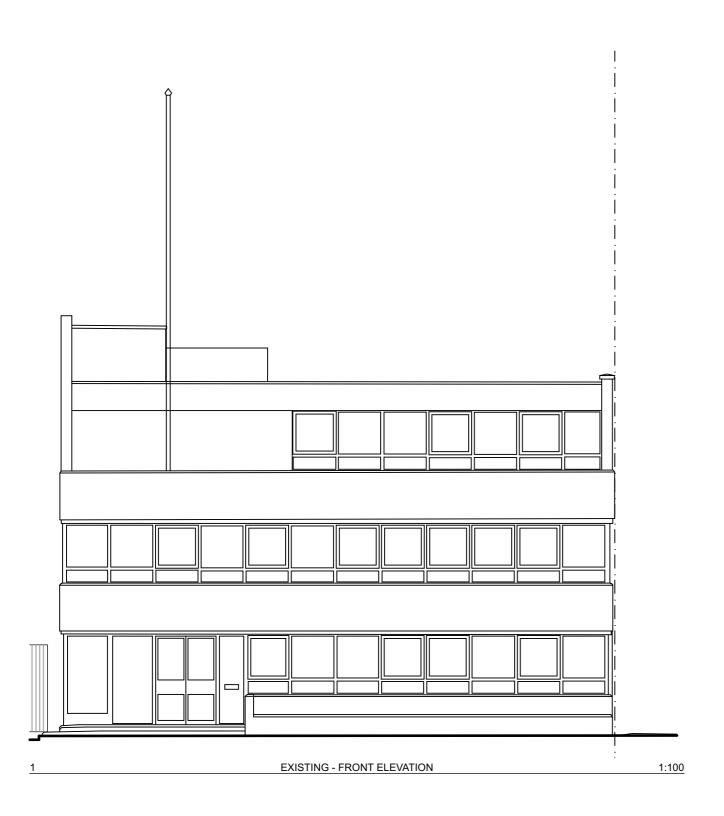
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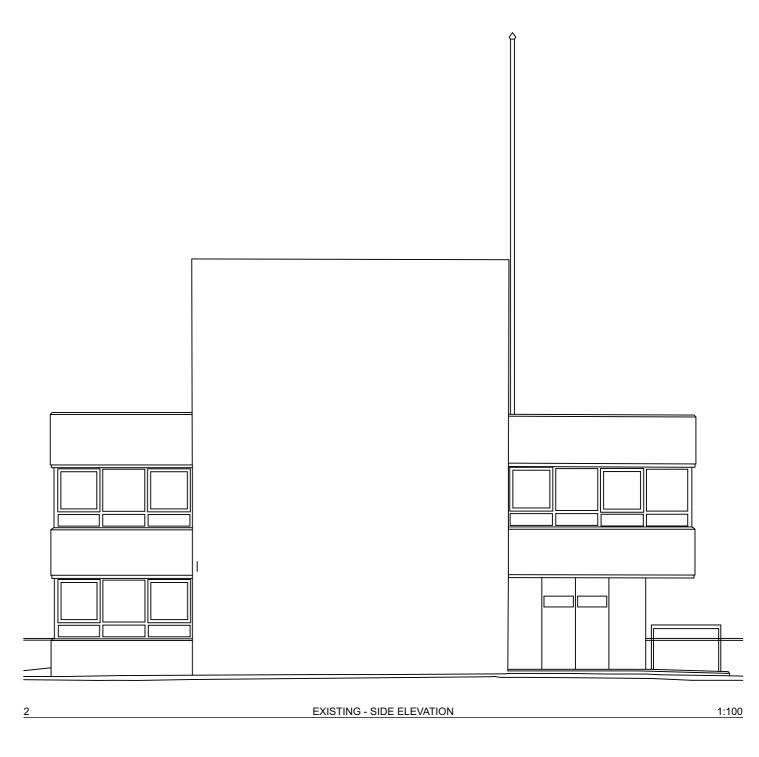


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ISSUE - FOR PERMITTED DEVELOPMENT

1452





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ISSUE - FOR PERMITTED DEVELOPMENT

CHARLES DOE ARCHITECTS

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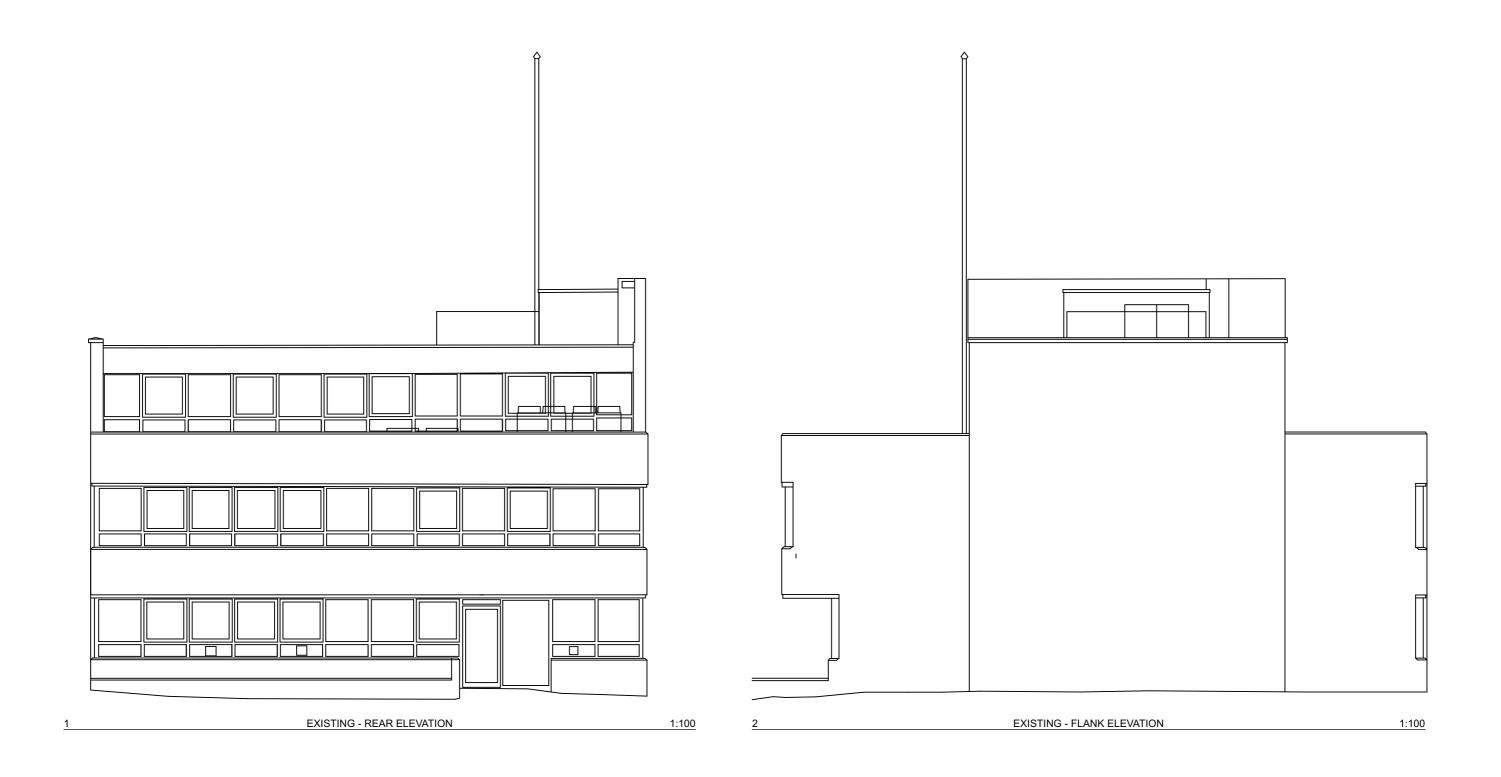
BLOCK C - EXISTING FRONT AND SIDE ELEVATION Scale 1:100 @ A3

Date SEPTEMBER 2021

@ A3 Project

Drawing No. S-120

1452





ISSUE - FOR PERMITTED DEVELOPMENT

3 The Square Richmond Surrey TW9 1DY

Tel: +44 (0) 20 8948 4200 Fax: +44 (0) 20 8948 4201 OFFICE AND RESIDENTIAL 63-71 HIGH STREET HAMPTON HILL

BLOCK C - EXISTING REAR ELEVATION cale 1:100 @ A3

Project 1452

Date SEPTEMBER 2021



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3 The Square Richmond Surrey TW9 1DY

Tel: +44 (0) 20 8948 4200 Fax: +44 (0) 20 8948 4201 OFFICE AND RESIDENTIAL 63-71 HIGH STREET HAMPTON HILL

BLOCK C - PROPOSED SITE PLAN ale 1:200 @ A3 ate MARCH 2022 Project 1452

Drawing No. TP-200



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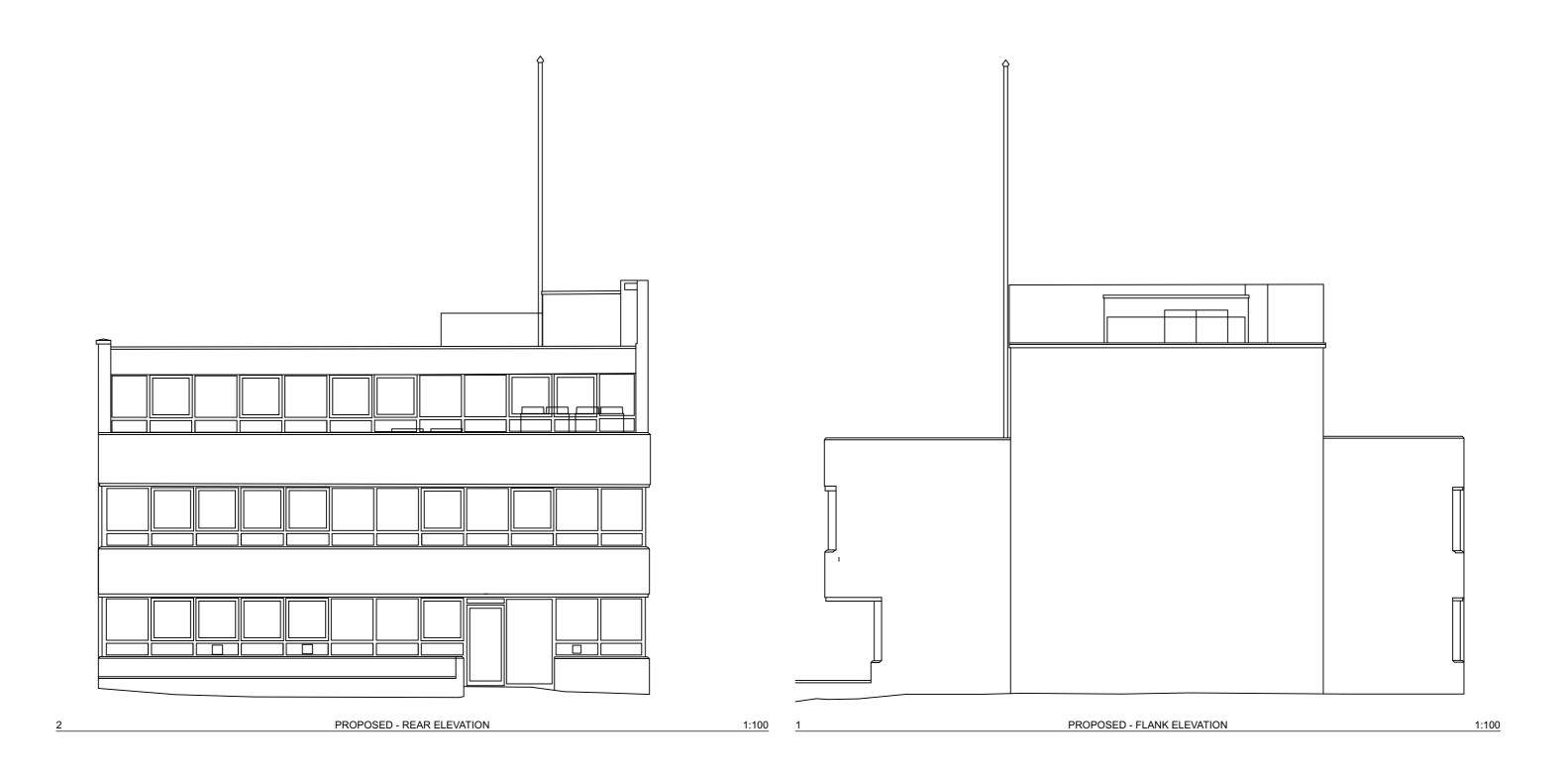
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3 The Square Richmond Surrey TW9 1DY

Tel: +44 (0) 20 8948 4200 Fax: +44 (0) 20 8948 4201 OFFICE AND RESIDENTIAL 63-71 HIGH STREET HAMPTON HILL

BLOCK C - PROPOSED BASEMENT PLAN ale 1:100 @ A3 ate MARCH 2022 Project 1452

Drawing No. TP-201



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ISSUE - FOR PERMITTED DEVELOPMENT

3 The Square Richmond Surrey TW9 1DY

Tel: +44 (0) 20 8948 4200 Fax: +44 (0) 20 8948 4201 OFFICE AND RESIDENTIAL 63-71 HIGH STREET HAMPTON HILL

BLOCK C - PROPOSED
REAR AND FLANK ELEVATIONS

cale 1:100 @ A3

MARCH 2022

Date

Project 1452

Drawing No. TP-221



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ISSUE - FOR PERMITTED DEVELOPMENT

Drawing No.

TP-202



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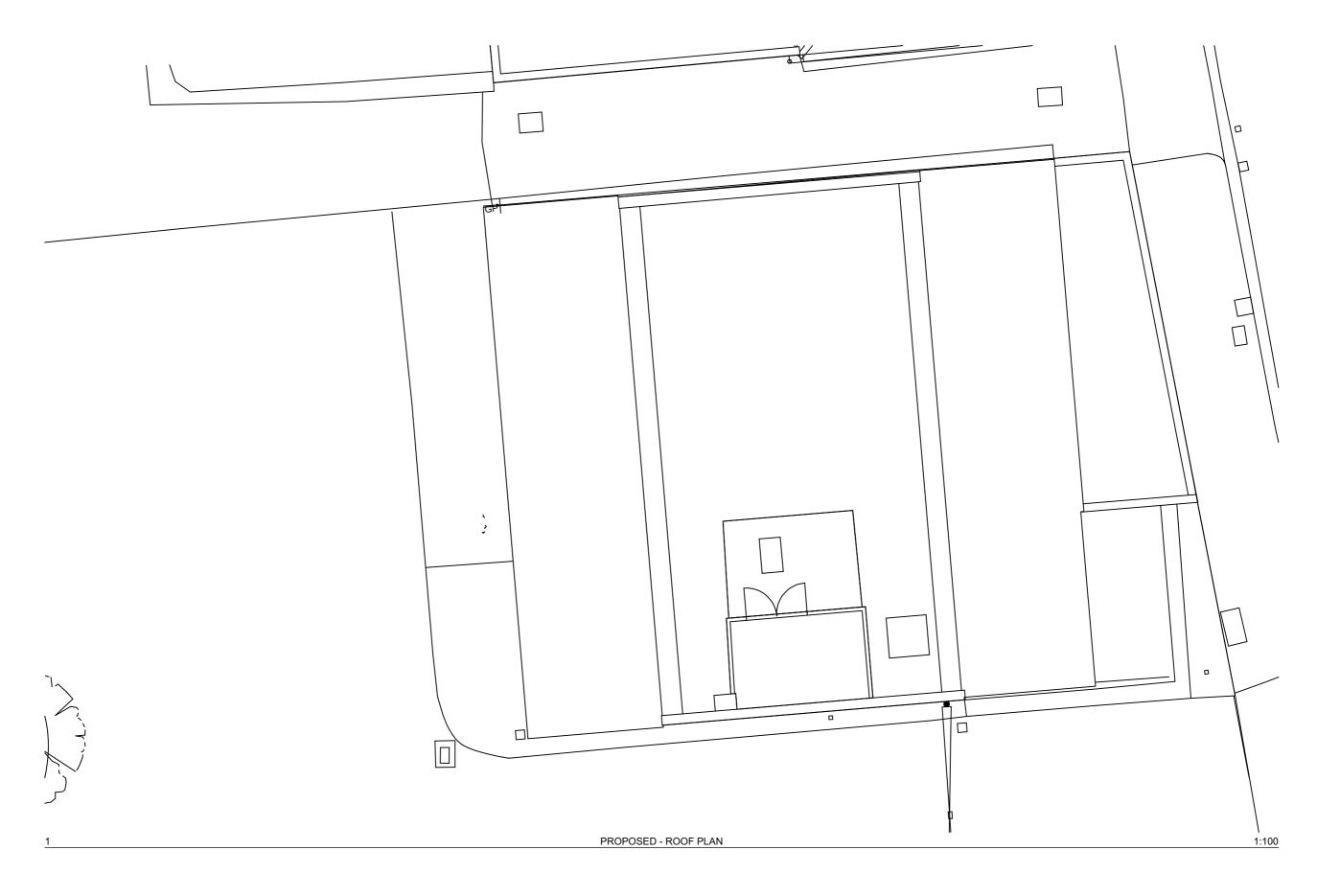
TP-203

Drawing No.



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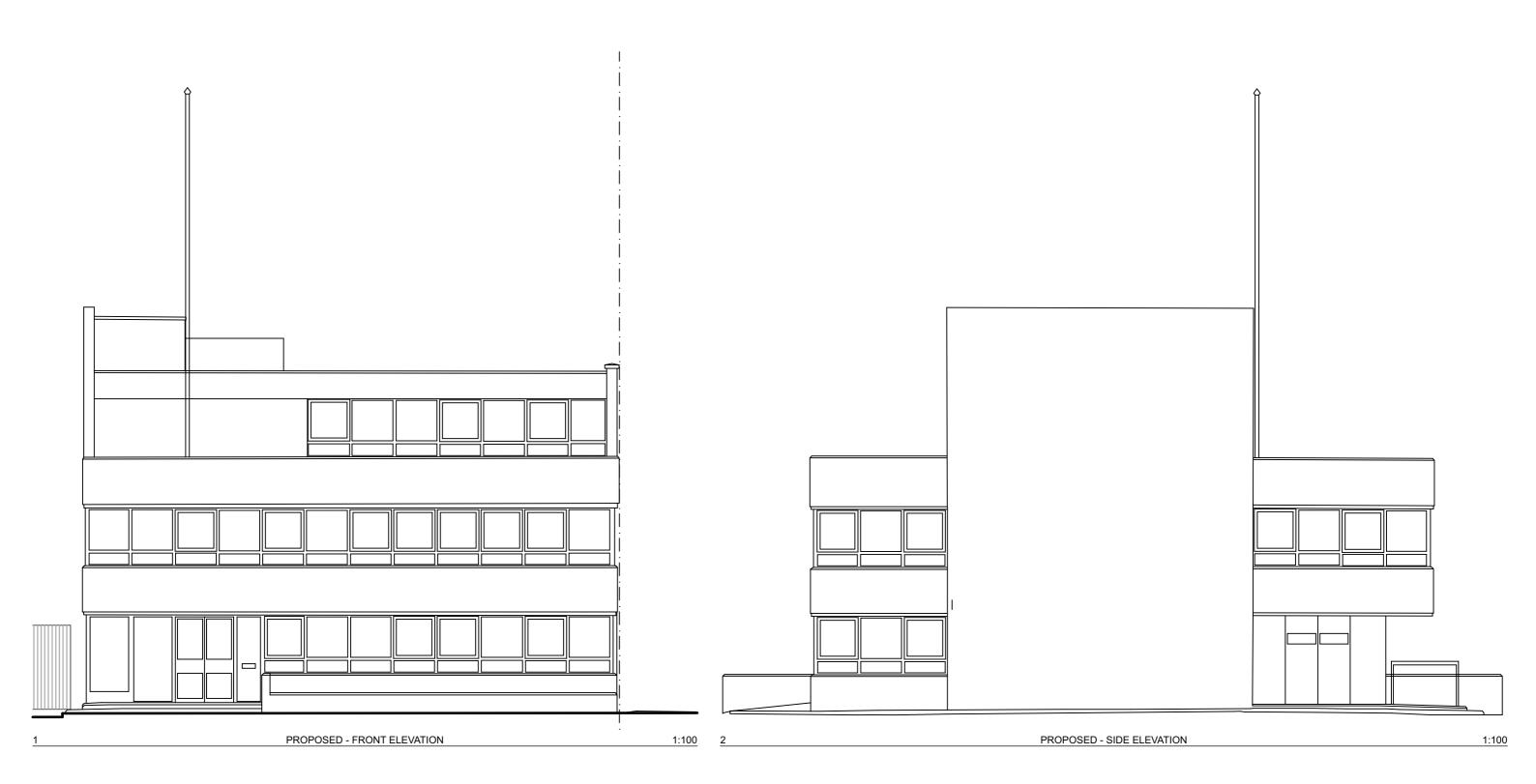


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TP-205



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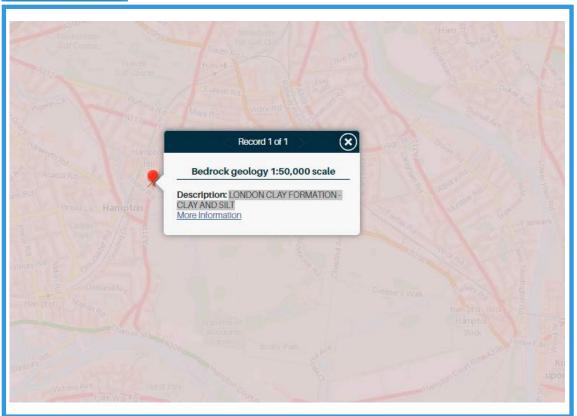
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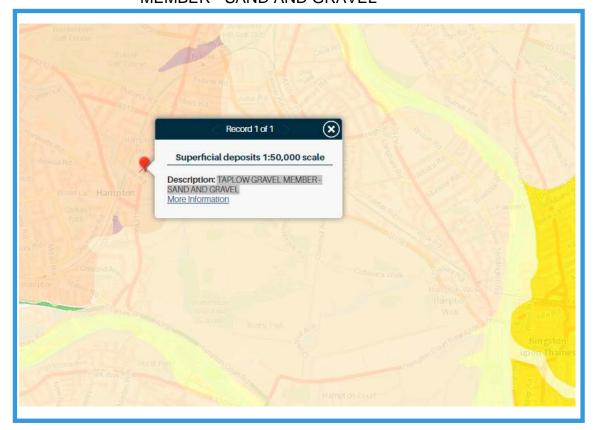
Appendix C



GEOLOGY - BEDROCK - LONDON CLAY FORMATION - CLAY AND SILT



GEOLOGY - SUPERFICIAL DEPOSITS - TAPLOW GRAVEL MEMBER - SAND AND GRAVEL

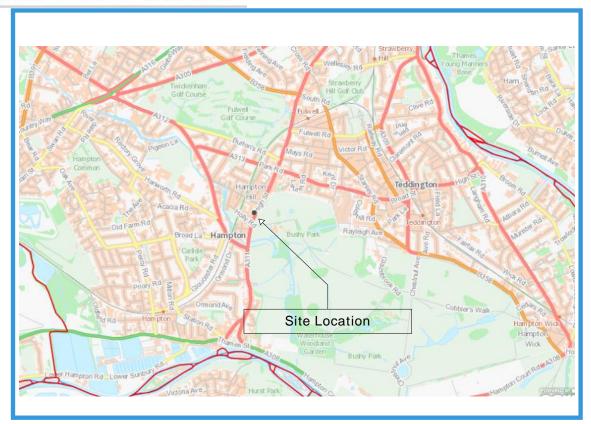




SITE HYDROGEOLOGY



Reminent Main River Map

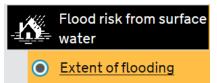




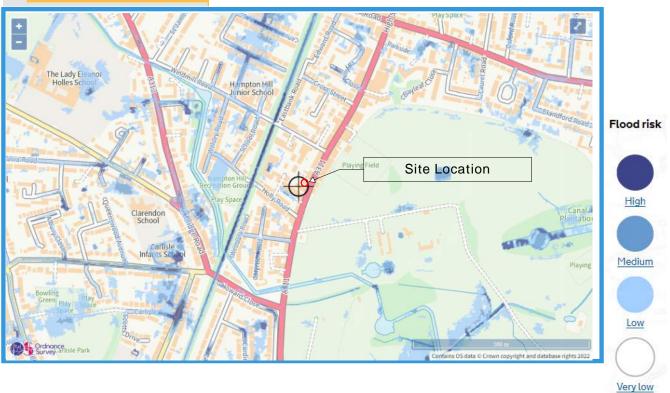




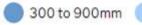
SITE SURFACE WATER FLOOD RISK



Low risk means that each year this area has a chance of flooding of between 0.1% and 1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.



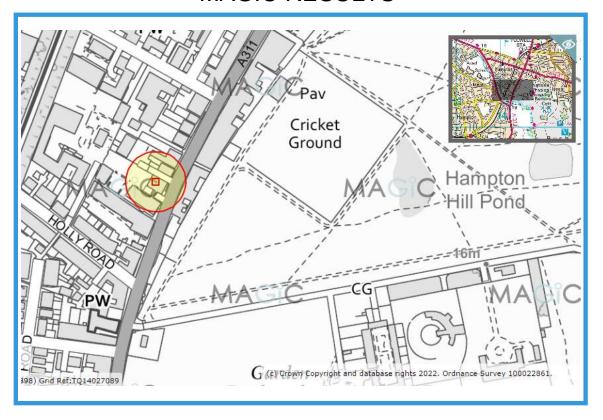


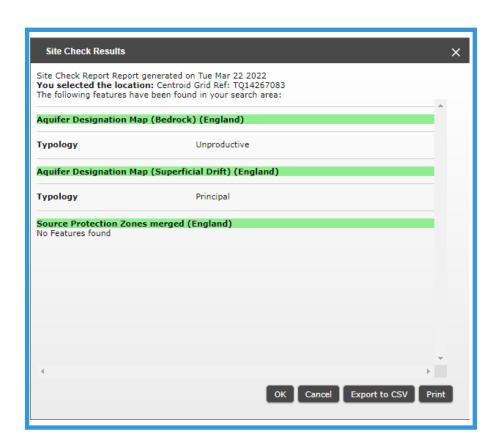






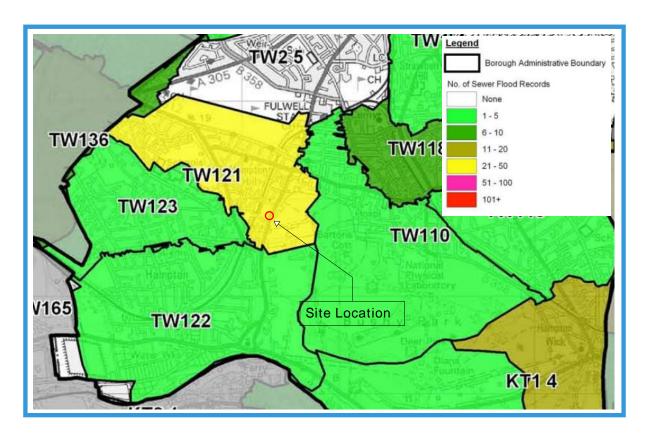
MAGIC RESULTS



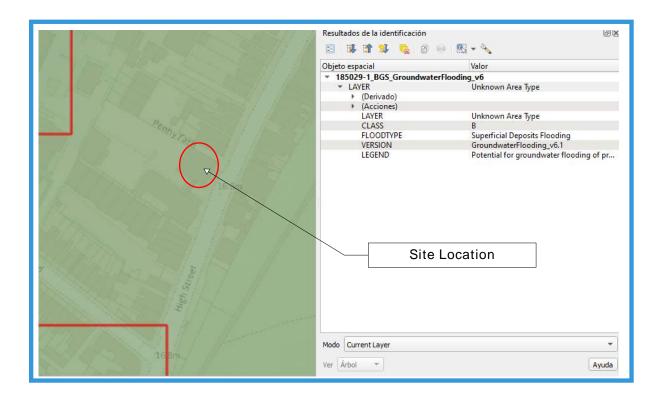




SITE SEWER FLOODING

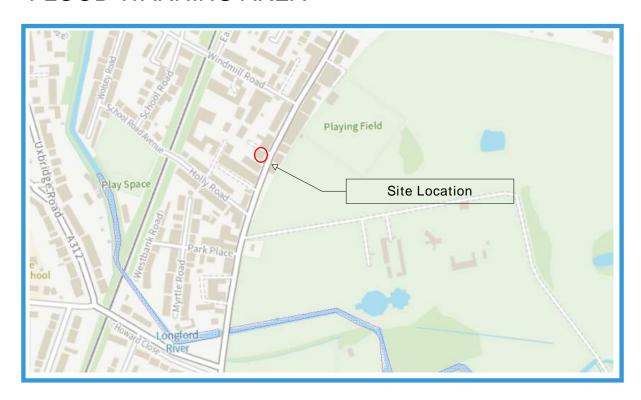


GROUND WATER FLOOD RISK



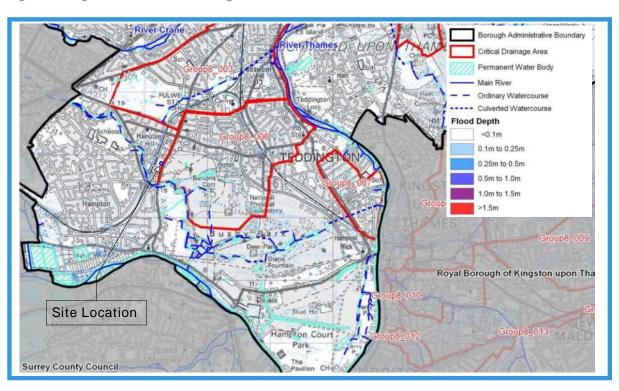


FLOOD WARNING AREA



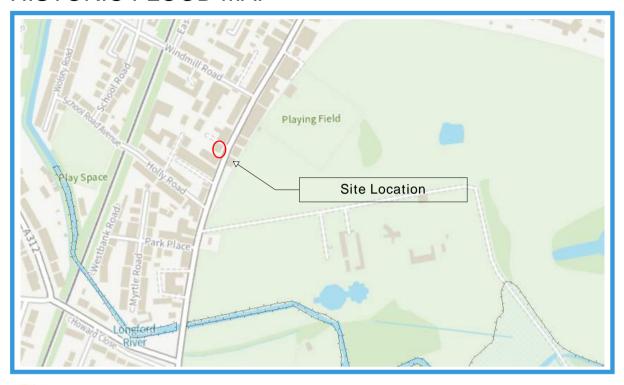
Flood Warning areas

CRITICAL DRAINAGE AREA





HISTORIC FLOOD MAP



Historic Flood Outline



Flood map for planning

Your reference Location (easting/northing) Created

TW12 1NH 514266/170833 22 Mar 2022 16:51

Your selected location is in flood zone 1, an area with a low probability of flooding.

This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1
 hectare or affected by other sources of flooding or in an area with critical drainage
 problems

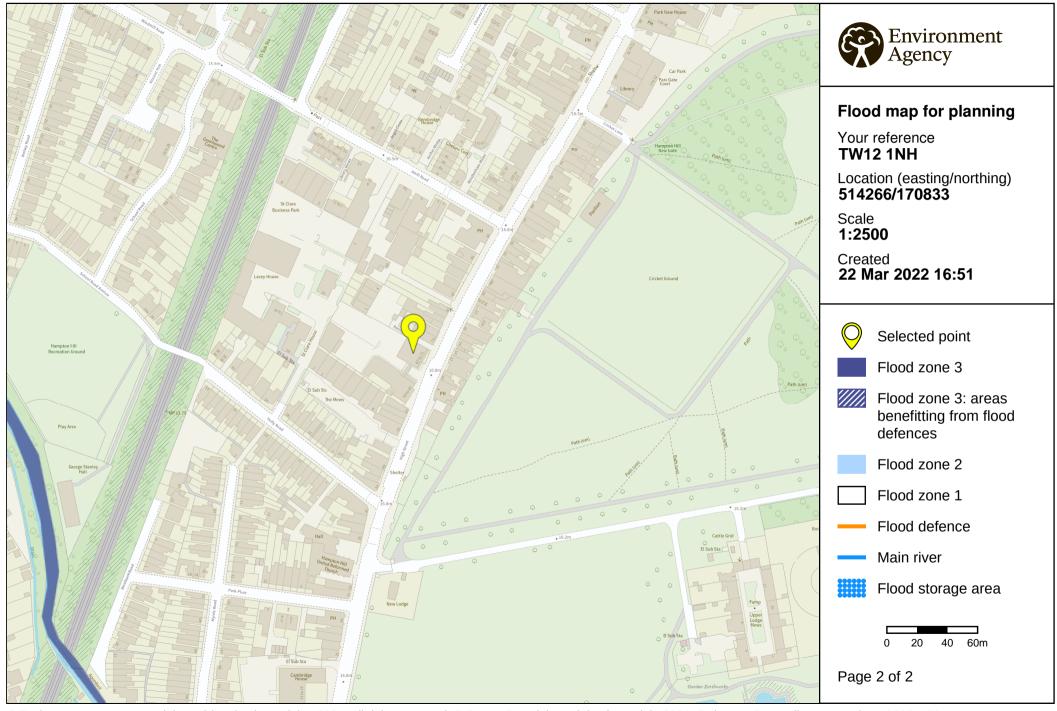
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

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